Attachment H

Proposal # 2001- H-209 (Office Use Only)

PSP Cover Sheet (Attach to the front of each proposal)

Proposal Title: Digital Soil Survey Mapping and Digital Orthophotoquad Imagery Development
Applicant Name: USDA, Natural Resource Conservation Service and CA Conservation Partnership
Contact Name: Eric N. Vinson, State Soil Scientist
Mailing Address: USDA, NRCS, 430 G Street, #4164, Davis, CA 95616-4164
Telephone: (530) 792-5640
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Email: Eric.Vinson@ca.usda.gov

Amount of funding requested: $ 730,600
Some entities **charge** different costs dependent on the source of the funds. **If** it is different for state or federal funds list below.
State cost _____ Federal cost _____

Cost share partners? X **Yes** ____ **No**
Identify partners and amount contributed by each NRCS - $287,901

Indicate the Topic for which you are applying (check only one box).

- ☐ Natural Flow Regimes
- ☐ Nonnative invasive Species
- ☐ Channel Dynamics/Sediment Transport
- ☐ Flood Management
- ☐ Shallow Water Tidal/ Marsh Habitat
- ☐ Contaminants
- ☐ Beyond the Riparian Corridor
- ☒ Local Watershed Stewardship
- ☐ Environmental Education
- ☐ Special Status Species Surveys and Studies
- ☐ Fishery Monitoring, Assessment and Research
- ☐ Fish Screens

What county or counties is the project located in? Sonoma, Glenn, Amador, Madera, Merced, Nevada, Shasta, Stanislaus and Tehama

What CALFED ecozone is the project located in? See attached list and indicate number. Be as specific as possible 15 Landscape - entire CALFED Bay-Delta Region

Indicate the type of applicant (check only one box):

- ☐ State agency
- ☐ Public/Non-profit joint venture
- ☐ Local government/district
- ☐ University
- ☐ Other: _____
- ☒ Federal agency
- ☐ Non-profit
- ☐ Tribes
- ☐ Private party

Indicate the primary species which the proposal addresses (check all that apply):

- [x] San Joaquin and East-side Delta tributaries fall-run chinook salmon
- [x] Winter-run chinook salmon
- [x] Spring-run chinook salmon
- [x] Late-fall run chinook salmon
- [x] Fall-run chinook salmon
- [x] Delta smelt
- [x] Longfin smelt
- [x] Splittail
- [x] **Steelhead** trout
- [x] Green sturgeon
- [x] Striped bass
- [x] White Sturgeon
- [x] **All** chinook species
- [x] Waterfowl and Shorebirds
- [x] **All** anadromous salmonids
- [x] Migratory buds
- [x] **Americanshad**
- [ ] Other listed T/E species: _____

Indicate the type of project (check only one box):

- [x] Research/Monitoring
- [ ] Watershed Planning
- [ ] Pilot/Demo Project
- [ ] Education
- [ ] Full-scale Implementation

Is this a next-phase of an ongoing project? Yes ___ No_x_
Have you received funding from CALFED before? Yes ___ No_x_

If yes, list project title and CALFED number_____

Have you received funding from CVPIA before? Yes ___ No_x_

If yes, list CVPIA program providing funding, project title and CVPIA number (if applicable):

_____

By signing **below,** the **applicant declares** the following:

- The truthfulness of all representations in their proposal;
- The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section ***2.4)*** and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

JEFFREY R. VONK
Printed name of applicant

Signature of applicant

B. Executive Summary

Title **of** Project: Digital Soil Survey Mapping and Digital Orthophotoquad Imagery Development for the Bay-Delta Region

Amount Requested $730,600

Applicant Name: USDA, Natural Resources Conservation Service, Davis, California and the California Conservation Partnership

Primary Contact: Eric N. V i o n , State Soil Scientist
USDA, NRCS, 430 G Street, #4164, Davis, CA 95616-4164
Teleuhone: (530) 792-5640. FAX: (530) 792-5794
E-mail: **Eric.Vinson@,ca.usda.gov**

Participants and **Collaborators:** The primary participants and collaborators of this proposal are the members of the California Conservation Partnership and the National Cooperative Soil Survey Program. These members include the USDA, Natural Resources Conservation Service, CA Department of Conservation, CA Association of Resource Conservation Districts, CA's Resource Conservation Districts, USDA Forest Service, U.S. Environmental Protection Agency, USDA **Farm** Services Agency, USDI Bureau of Reclamation, USDI Bureau of Land Management, USDA Agricultural Research Service, CA *Air* Resources Board, CA Conservation Corps, CA Coastal Commission, CA Coastal Conservancy, CA Energy Commission, CA Department of Boating and Waterways, CA Department of Fish and Game, CA Department of Food and Agriculture, CA Department of Forestry and Fire Protection, Resources Agency, CA Department of Water Resources, CA Water Resources Control Board, CA Department of Pesticide Regulation, Cooperative Extension Service, CA's Land Grant Universities, County Supervisors Association of California, and County Governments.

Executive Summary: Soils data is currently underutilized by groups and organizations engaged in planning and implementing ecosystem restoration projects. A major reason for this is the lack of readily available electronic soils information in California. The objective of the proposed project is to make soils information more accessible to individuals and groups engaged in ecosystem restoration projects in the Bay-Delta Region, and in doing so, improve the responsiveness of these projects to establishing habitat and supporting sustainable populations of valuable species. The study of soil as a l i i t i n g factor or controlliig variable to the survival of a species will help address many of the scientific uncertainties outlined in the ERP Strategic Plan, including natural flow regime, decliie in productivity, non-native species, and beyond the riparian corridor, and meet the ERP Strategic Plan Goals of protecting species at-risk, restoring habitat, eradicating non-native invasives, and maintaining ecosystem processes.

Specific funding of $730,600 is being requested from CALFED to rectify and digitize a large portion of the county-based soil maps in the Bay-Delta region, within a 3-year timefiame (NRCS will provide $287,901 match). The basic approach will be to use NRCS permanent full-time staff and contracted services to complete the following tasks: 1) obtain updated imagery, 2) recompile original soil survey atlas sheets, 3) develop soil attribute tables, 4) digitize soil boundaries and certify digital linework **and** attribute tables, 5) release the data to the public, and 6) manage the project. Deliverable products will include two digital data layers for 9 ***Soil*** Survey Areas: 1) Digital Orthophotoquads (DOQ) data layer, and 2) a certified electronic digital soils data layer with accompanying soil property and interpretations attribute tables. The county areas included in **this** proposal are: Shasta Area, Tehama County, Glenn County, Nevada County Area, Amador Area, Eastern Stanislaus Area, Merced Area, Madera Area, and Sonoma County.

C. Project Description.

The USDA, Natural Resources Conservation Service (NRCS) is seeking CALFED funding to rectify and digitize a large portion of the county-based soil maps in the Bay-Delta Region. If fully funded, the NRCS would recompile and digitize 9 NRCS published Soil Survey Reports covering 7,385,686 acres, or 400 quad sheets of data (USGS 1:24,000 scale).

1. Statement **of** the Problem.

a. Problem. Soils data is currently underutiliied by groups and organizations engaged in planning and implementing ecosystem restoration projects. (See previous year CALFED projects). Restoration projects are often developed within a narrow set of limiting factors that often do not include the study of soils. **A** major reason for ***this*** is the lack of readily available soils information in California Although a large number of soil surveys have been completed in the. state, there are still significant areas that **are** unmapped, and even more areas where the soils information is only available in published report format (Source: NRCS). With new information technologies and increased accessibility to electronic tools for processing and displaying information (e.g. Geographic Information Systems, or GIS), there is an increasing need and demand for digital data products.

The objective of the proposed project is to make soils information more accessible to individuals and groups engaged in ecosystem restoration projects in the Bay-Delta Region, and in doing so, improve the responsiveness of these projects to establishing habitat and supporting sustainable populations of valuable species.

b. Conceptual Model. The presence and success of an organism or a group of organisms depends upon a complex set of conditions that includes (1) the quantity and variability of materials for which there is ***a*** minimum requirement and physical factors which are critical, and (2) the l i i t s of tolerance of the organisms themselves to these and other components of the environment (Odum, 1971). This concept of limiting factors gives ecologists a means for studying complex situations without having to consider ***a*** long, comprehensive list of possible factors. If an organism is known to have definite limits of tolerance for a factor which is also variable in the environment, then that factor can be carefully studied **as** to how it might be limiting to the survival of the organism (Odum, 1971).

Soil is one of the physical factors of importance that influence an organism's ability to survive. (Odum, 1971). **This** is especially true in regions such **as** California, that are geologically young, where small differences in soil types may make significant differences in the resulting biotic community (Odum, 1971). What this means is that soils information can contribute significantly to our ability to describe the kinds of plant communities that have historically existed and can potentially exist in areas targeted for restoration.

As stated in the ERP Proposal Solicitation Package, "The success of restoration efforts are ultimately tied to population and community responses of native species. Many factors may control responses under different environmental conditions, and those factors most limiting to the distribution and abundance of populations are usually unknown." Specifically, the study of soils **as** a limiting factor or controlliig variable to the survival of **an** individual, population or community, can contribute significantly to achieving a consensus on how to proceed with restoration projects. For example, by mapping the different soil types **within** an area, you can identify the native plant species and communities that are most likely to occur (in a historical context) on each soil type. **As** a result, when a particular soil type is found on a landscape targeted for restoration, you can identify the native species most likely to survive if re-established. These descriptions of

the plant community soil interrelationships are known as ecological site descriptions and are extremely useful in restoration projects. The ecological site description is a part of the ongoing soil survey mapping effort and are linked in table format to the digital soil linework.

The study of soil as a limiting factor or controlling variable to the survival of a species will help address many of the scientific uncertainties outlined in the ERP Strategic Plan. Soils play a significant role in determining the natural flow regime – i.e. how, when and how much water drains from the land into stream channels. This is due in part to the permeability and runoff potential of various soil types. In addition, soils information can help characterize the relationship between channel flow and bank erosion, and the sources of sediment for restoration purposes.

Another scientific uncertainty identified in the ERP Strategic Plan is the decline in productivity at the base of the foodweb throughout the Delta and northern San Francisco Bay. Soils and the associated management and tillage practices likely to occur play a key role in determining the carbon and nutrient loads delivered to the estuary. Because of a strong correlation between soil type, land capability, and land use, predictive statements can be made, based on soil type, as to likely land uses and tillage practices. *Also,* different soils fix the different nutrients (e.g. N, P, K, etc.) at different rates, thereby affecting their transport through the ecosystem.

The ERP Strategic Plan states the need for more information on the extent to which non-native species can be eradicated **or** controlled effectively. In planning the removal of non-native vegetation (such as Tamarisk and *Arundo donax*), soils *can* play a key part in mapping those areas most susceptible to invasion, as well as providing information about how to best establish native species in areas formerly occupied by non-natives **(through** the use of ecological site descriptions).

Other areas of scientific uncertainty that would be enhanced by using soils information in restoration projects include channel dynamics, sediment transport, riparian vegetation, and contaminants in the Central Valley. The type of soil and parent material has a strong influence on geomorphic processes including sediment transport and bark erosion. Soils also have different leaching potential that affects the transport of contaminants. Soils also contain various quantities of naturally occurring selenium and these areas can be identified in published soil surveys.

Another area of scientific uncertainty identified in the ERP Strategic Plan are those liiting factors which determine the distribution and abundance of selected wetland species in shallow water, tidal and freshwater marsh habitat. Soil is one of those limiting factors. The type of hydric soil present will influence the types of wetland species that can survive and hence can provide valuable information in selecting plants for wetlands restoration projects. In addition, the soil type will determine whether or not a wetland can be created that will hold water.

Other relevant uncertainties identified in the ERP include beyond the riparian corridor and local watershed stewardship. In both of these areas of scientific uncertainty, soils information provides baseline data for defining problems and opportunities, and for planning and implementing various management practices. Soils are an important data layer in completing a watershed assessment, including providing **a** historical context for natural resources and conditions in the watershed. Currently, this data layer is not universally available. In many cases, standards and specifications for installing conservation practices will be based on soil types – e.g. recommended plant species for agricultural buffer zones will depend on the soil types present. ***Also,*** for example, the location and stability of access roads will be greatly affected by ***soil*** type

and geologic condition (i.e. parent material). Soils formed in serpentine parent material tend to have slip-, slide characteristics and hence are more susceptible to erosion and the production of sediment.

c. Hypotheses being tested. Although important to the success of restoration projects, the use of soils information in developing and implementing restoration projects is currently l i i t e d by people's accessibility to this information. In its current form (predominantly a published soil survey report in narrative and table format), soils information is difficult to extract – especially on large regional scales - in order to plan restoration projects. By converting *this* information to electronic digital format, the information will become readily available to watershed groups, local planning commissions, researchers, and agencies engaged in restoration activities. In general, the hypothesis driving the completion of the project is that digital spatial soils data is important in the planning and implementation phases of ecosystem restoration projects,

Specific Hypothesis: Soil survey data and interpretations tables that are made available in digital electronic format to individuals, researchers, govemments, local groups and other organizations, will be used more often than hard paper copy versions to develop science-based plans and restoration projects. As a result, these projects will be more responsive to establishing habitat and supporting sustainable populations of valuable species.

The natural resource information provided with digital soils data will help achieve parts of all six of the Ecosystem Restoration Strategic Goals. At-risk species will benefit by using digital soils information to identify native plant species most suitable for habitat restoration. In addition, soils information can tell us a lot about the geologic and ecosystem processes that affect the natural aquatic and associated terrestrial biotic communities, and thus help in setting management strategies to maintain these processes. By knowing soil types and land capabilities, a wide array of habitats can be restored. Digital soils information can help in identifying and mapping non-native invasive vegetation, and thus contribute to their eradication. And, soils information is critical in identifying sediment sources and movement within a watershed.

There is a strong demand for digital soil survey products. Users of GIS as an analysis and planning tools typically require soils information in digital format. *NRCS* regularly receives, and is unable to meet all requests for this data. *NRCS* has also received several calls of support since expressing an interest in submitting a proposal for CALFED funding to accelerate the delivery of digital soils data. The National Soil Survey Program has developed its digitizing and certification procedures in coordination with the needs of its soils and data users and other programs.

d. Adaptive Management. Using the adaptive management process outlined in the PSP, any restoration project or action undertaken can potentially provide information back into the system to refine objectives and targets, to reassess problems, redefine models, and otherwise improve the exploration of alternative management strategies and actions and their impact on ecosystem structure and function.

Currently, millions of dollars are being spent in restoration projects without the use of soils information to help guide project direction and decisions. To date, CALFED's ERP has funded 272 projects for a total of approximately $284 million (CALFED 2001 PSP), most of which have no reference to soil type and its influence as a controlliig variable in species survival. The implementation of this proposal will result in greater use of soils information by researchers and natural resource managers as they engage in studies and develop and implement restoration projects. As this occurs, there will be experiences gained through on-the-ground application. For example, we may learn that certain native plant communities are easier to

establish than others on specific soil types. This will enhance our success rate on subsequent restoration projects planned on similar soil types.

The first step in the adaptive management process is making the soils information available in digital electronic format. This will increase its accessibility to project planners who will then begin using this information to plan pilot demonstration or other implementation projects. As a result of this action, we will begin to collect more and more information that correlates habitats, species, and ecosystem processes to soil type. Since soils are a geographic delineation, *this* correlated information can be used to develop soil attribute tables, which when linked to the geographic boundaries of the various soil types, can provide a powerful database to help guide restoration actions. Over time, we will be able to address much of the scientific uncertainty associated with soil as a controlling variable for species and communities, thereby making better management decisions.

e. Educational Objectives. The audience being targeted by *this* proposal is all end users of soil survey information, particularly those who have the skills, software and hardware needed to use digital soils information. The numbers of users with these capabilities is increasing exponentially. The educational objectives of *this* project are to make the soils information available in digital format, and then notify potential end users of its availability. NRCS will make *this* information available through its state office in Davis and local field offices throughout the Bay-Delta Region, and provide technical assistance to natural resource planners and managers on how to use this information in planning and implementing restoration projects. The educational objective is to increase the use of soils information to enhance the scientific basis for projects and contribute to the issues of uncertainty.

2. Proposed Scope of Work.

a. Location and/or Geographic Boundaries of the Project. The following 9 published Soil Survey Areas in the Bay-Delta Region are being proposed for digitizing and development of Digital Orthophotoquad (DOQ) imagery *(see enclosed maps: 1) Current Status of Digital Surveys - CALFED Proposed Project Area Map, and 2) Map of Published Soils Surveys – all forms):*

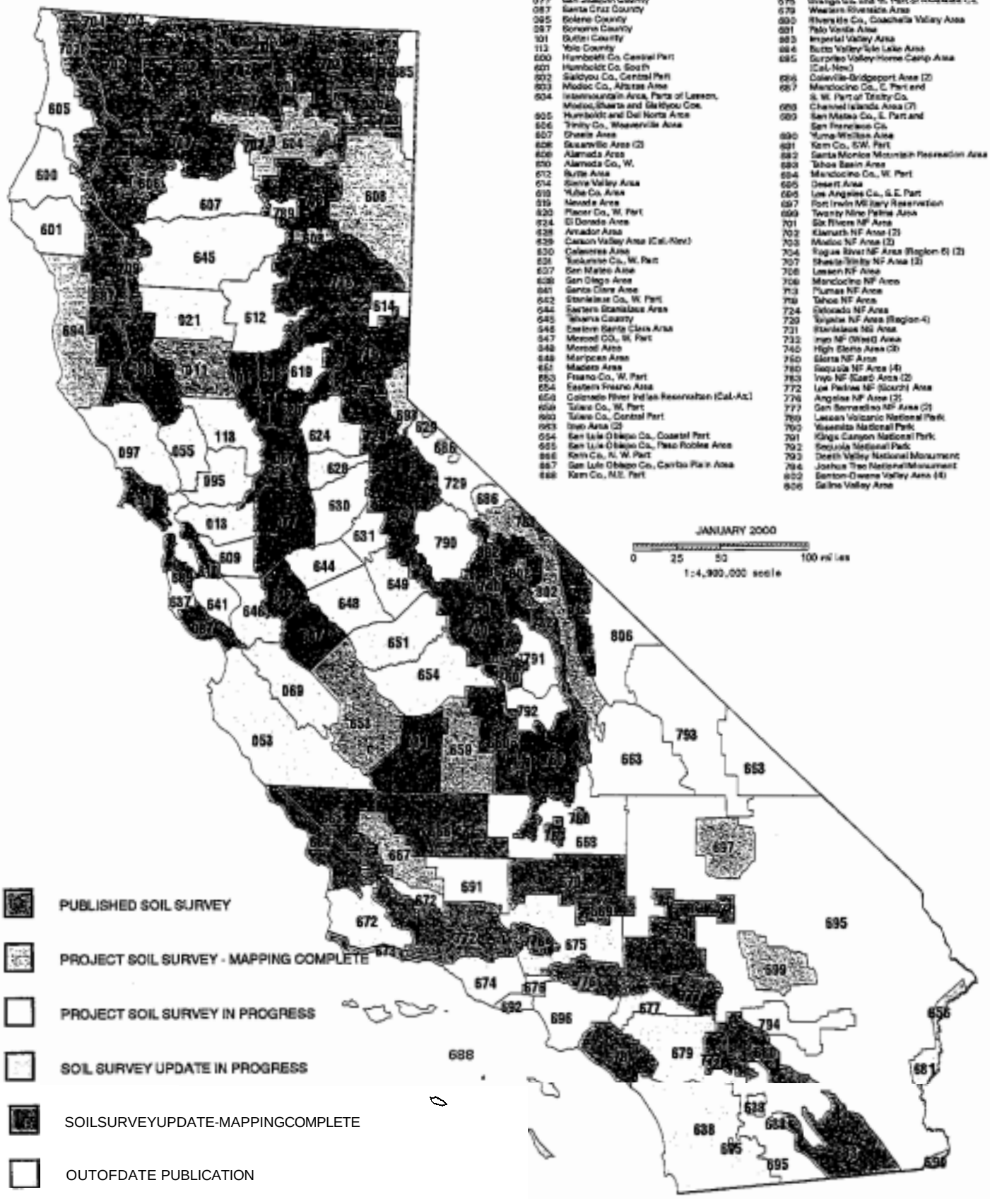
Proposed Digital Soil Survey Areas

Ecozone	soil Survey Area	Name of Published Soil Survey	Acres	county
12, 13	644	*East Stanislaus Area	481,946	Stanislaus Co.
12, 13	648	*Merced Area	651,544	Merced Co.
12, 13	651	*Madera Area	874,880	Madera Co.
5, 6, 3, 7	645	*Tehama County	1,851,601	Tehama Co.
3, 6, 7	021	*Glenn County	849,197	Glenn Co.
4, 5	607	Shasta County	1,025,000	Shasta Co.
8	619	Nevada County Area	341,966	Nevada Co.
11	628	Amador Area	298,992	Amador Co.
2	097	Sonoma County	1,010,560	Sonoma Co.
		TOTAL	7,385,686 acres	

* Geographically associated. Treat as one project area

The associated ecozones include East San Joaquin Basin (13), San Joaquin River Zone (12), Cottonwood Creek (5), Sacramento River Zone (3), Colusa Basin (6), Butte Basin (7), North Sacramento Valley (4), Feather River Sutter Basin (8), East Side Delta Tributaries (11) and Suisun Marsh/San Francisco Bay (2).

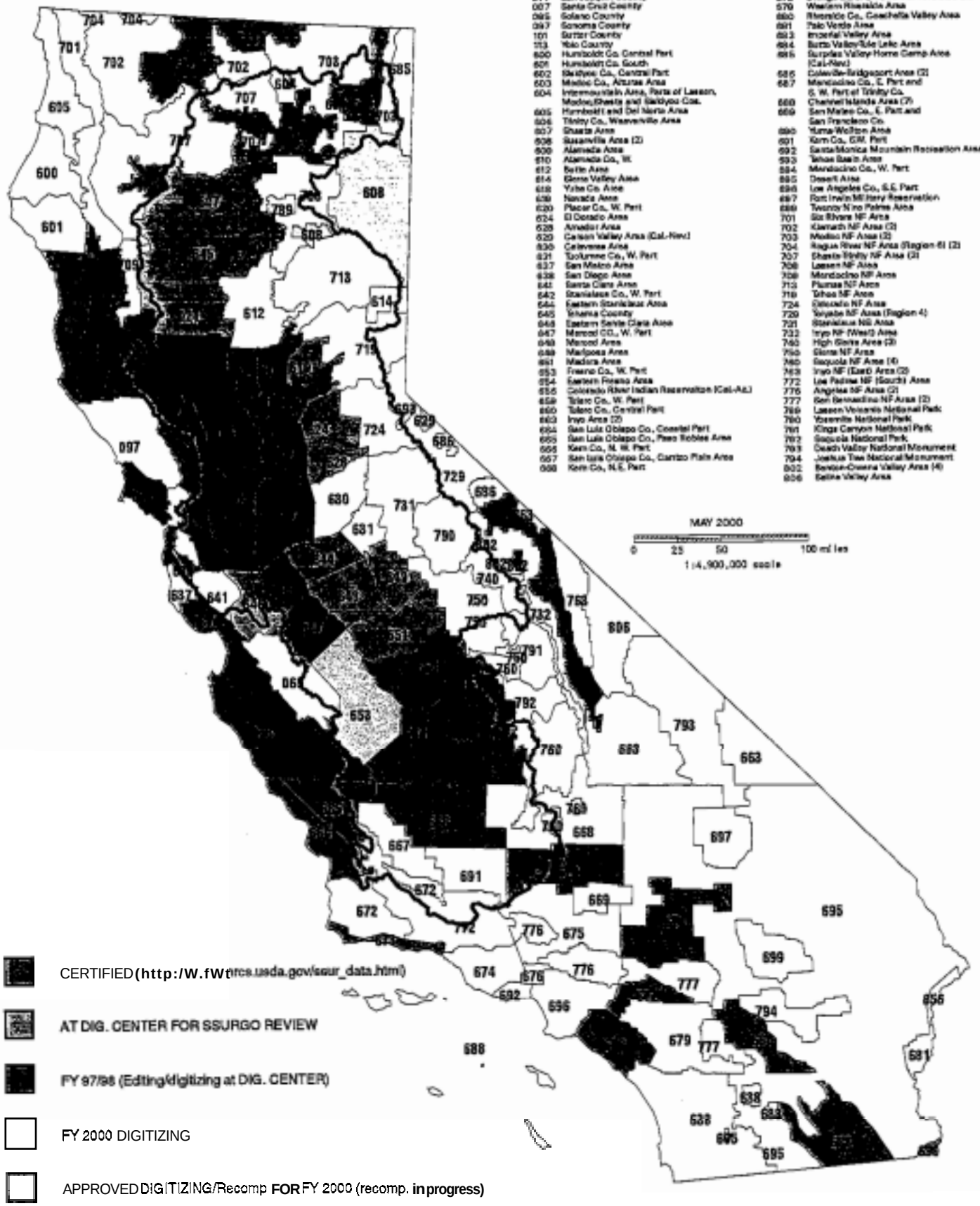
STATUS **OF SOIL** SURVEYS CALIFORNIA



111 Colusa County
013 Contra Costa County
021 Glenn County
031 Kings County
033 Lake County
041 Marin County
053 Monterey County
055 Napa County
067 Sacramento County
069 San Benito County
077 San Joaquin County
087 Santa Cruz County
095 Solano County
097 Sonoma County
101 Sutter County
113 Yolo County
600 Humboldt Co. Central Part
601 Humboldt Co. South
602 Siskiyou Co., Central Part
603 Modoc Co., Alturas Area
604 Intermountain Area, Parts of Lassen, Modoc, Shasta and Siskiyou Cos.
605 Humboldt and Del Norte Area
606 Trinity Co., Weaverville Area
607 Shasta Area
608 Susanville Area (2)
609 Alameda Area
610 Alameda Co., W.
612 Butte Area
614 Sierra Valley Area
615 Yuba Co. Area
619 Nevada Area
620 Placer Co., W. Part
624 El Dorado Area
628 Amador Area
629 Carson Valley Area (Cal.-Nev.)
630 Calaveras Area
631 Tuolumne Co., W. Part
637 San Mateo Area
638 San Diego Area
641 Santa Clara Area
642 Stanislaus Co., W. Part
644 Eastern Stanislaus Area
645 Tehama County
646 Eastern Santa Clara Area
647 Merced CO., W. Part
648 Merced Area
649 Mariposa Area
651 Madera Area
653 Fresno Co., W. Part
654 Eastern Fresno Area
656 Colorado River Indian Reservation (Cal.-Ariz.)
658 Tulare Co., W. Part
660 Tulare Co., Central Part
663 Inyo Area (2)
684 San Luis Obispo Co., Coastal Part
685 San Luis Obispo Co., Paso Robles Area
686 Kern Co., N. W. Part
687 San Luis Obispo Co., Carrizo Plain Area
688 Kern Co., N.E. Part
689 Edwards AFB
690 Kern Co., S.E. Part
691 San Bernardino Co., Mojave River Area
692 Northern Santa Barbara Area (2)
693 Santa Barbara Co., South Coastal Part
694 Ventura Area
695 Antelope Valley Area
696 Los Angeles Co., S. Part W. San Fernando Valley Area
697 San Bernardino Co., S.W. Part
698 Orange Co. and W. Part of Riverside Co.
699 Western Riverside Area
700 Riverside Co., Coachella Valley Area
701 Palo Verde Area
703 Imperial Valley Area
704 Soda Valley Dry Lake Area
705 Surprise Valley Home Camp Area (Cal.-Nev.)
706 Colleville-Bridgeport Area (2)
707 Mendocino Co., E. Part and S. W. Part of Trinity Co.
708 Channel Islands Area (7)
709 San Mateo Co., S. Part and San Francisco Co.
710 Yuma-Wellton Area
711 Kern Co., S.W. Part
712 Santa Monica Mountain Recreation Area
713 Tahoe Basin Area
714 Mendocino Co., W. Part
715 Desert Area
716 Los Angeles Co., S.E. Part
717 Fort Irwin Military Reservation
719 Twenty Nine Palms Area
721 Six Rivers NF Area
722 Klamath NF Area (2)
723 Modoc NF Area (3)
724 Rogue River NF Area (Region 6) (2)
727 Shasta-Trinity NF Area (2)
728 Lassen NF Area
729 Mendocino NF Area
733 Plumas NF Area
739 Tahoe NF Area
740 Eldorado NF Area
741 Toiyabe NF Area (Region 4)
742 Stanislaus NF Area
743 Inyo NF (West) Area
744 High Sierra Area (3)
750 Sierra NF Area
760 Sequoia NF Area (4)
763 Inyo NF (East) Area (2)
772 Los Padres NF (South) Area
776 Angeles NF Area (3)
777 San Bernardino NF Area (2)
789 Lassen Volcanic National Park
790 Yosemite National Park
791 Kings Canyon National Park
792 Sequoia National Park
793 Death Valley National Monument
794 Joshua Tree National Monument
802 Benton-Owens Valley Area (4)
806 Salina Valley Area

USDA **United States Department of Agriculture**
Natural Resources Conservation Service
MAP COMPILATION UNIT, DAVIS, CA.
MAP ID = NEWSTAT

STATUS OF DIGITAL **SOIL** SURVEYS
CALIFORNIA



USDA United States Department of Agriculture
Natural Resources Conservation Service
MAP COMPILATION UNIT, DAVIS, CA.

b. Approach. The basic approach will include the use of NRCS permanent full-time staff and contracted services to obtain updated imagery, recompile original soil survey atlas sheets, digitize soil boundaries, and develop soil attribute tables for release to the public. The project will be coordinated and managed by three full-time NRCS soil scientists located in Davis, California. Their tasks will include oversight of the imagery production and recompilation tasks. The primary contractor for development of the Digital Orthophotoquad (DOQ) and hardcopy imagery products will be U.S. Geological Survey. The primary contractor for portions of the recompilation, digitizing and certification tasks will be the NRCS National Digitizing Center.

The project will comply with all applicable laws and regulations, and will be implemented under ***NRCS's*** soil survey authorities **CpL74-46).** Any quality assurance activities requiring field investigation will be coordinated with private landowners. This project is not anticipated to have any impact on the development or selection of alternatives in the CALFED long-term program (i.e. Programmatic EIR/EIS).

The project will be implemented in six major phases, called tasks. The tasks, deliverables, and schedule for completing the digital soil survey and orthophotoquad imagery products are as follows:

Task #1. Procure scale-accurate Digital Orthophotoquad (DOQ) and hardcopy imagery from USGS at a scale of 1:24,000 for the 9 priority Soil Survey Areas in the Bay-Delta Region **(see *CALFED Proposed Project Area Map*).** Complete through procurement contracts with USGS. ***Deliverubles:*** DOQ and hardcopy Orthophotography. ***Schedule:*** Month 1-12.

Task #2. Recompile the original NRCS soil survey atlas sheets (mapped at a 1:20,000 scale) to a photo base with a scale of 1:24,000 to match USGS Digital Orthophotoquad (DOQ) for image comparison purposes. Produce mylar overlays of the soil survey line work, registered to the USGS DOQ imagery. Resolve minor correlation issues that are primarily cartographic in nature or require minor correlation amendments. More difficult join discrepancies (e.g. soils that don't match up at county boundaries), requiring field investigation to correct, will be resolved in future years, as NRCS updates its soil surveys. NRCS soil scientists, staffed at the Davis State Office, will oversee the completion of *this* **task.** Task will be completed by contracting with the NRCS Digitizing Centers. ***Deliverubles:*** Recompiled soil survey line work on mylar overlays. ***Schedule:*** Month **6-18.**

Task #3. Develop attribute tables (electronic format) for digital soils data. Work to be performed by permanent full-time NRCS soil scientist. ***Deliverubles:*** Electronic soil attribute tables for linking to digital liiework. ***Schedule:*** Month **6-18:**

Tusk #4. Mylar linework scanned and digitized by NRCS Digitizing Centers for agency quality control and certification. ***Deliverubles:*** Certified digital soil database - liiework only. ***Schedule:*** Month 10-30.

Task #5. Official release of digital soils information for all Soil Survey Areas. ***Deliverubles:*** Certified digital soil database, including linework and attribute tables. ***Schedule:*** Month 31.

Task #6. Project Management. ***Deliverubles:*** Completion of the project - Certified digital soil database, including linework and attribute tables. ***Schedule:*** Month 31.

Several of the tasks will be completed simultaneously. For example, as DOQ's and Orthophotography are completed for each Soil Survey Area, they will be sent, with the original soil survey atlas sheets, to the

NRCS Digitizing Center for recompilation and digitizing. As a result, digital soil survey products will be available, beginning in Month 12 and continue until all 9 survey areas are complete in Month 31. Written progress reports will be sent to CALFED at each milestone event/date, or as required by CALFED.

The Natural Resources Conservation Service (formerly, Soil Conservation Service) and associated partners in the National Cooperative Soil Survey Program have national responsibility for coordinating the development and maintenance of the digital soil survey data layer for the United States. As such, the agency has developed very specific, detailed, and stringent quality assurances and control guidelines for the editing, production and certification of digital soils data. The quality assurances cover data definition, collection, organization, interpretation and retrieval associated with classifying and interpreting soils, geologic and landscape information. These standards are referenced in the USDA-NRCS National Soil Survey Handbook, Title 430-VI, Part 647, Soil Map Development, and part 648, Soil Geographic Databases.

The criteria used to test the hypothesis will be the frequency with which digital soil survey databases are requested fiom NRCS offices, and the extent to which future CALFED restoration projects use digital soils information to relieve scientific uncertainties in project development and implementation. An indicator of the extent to which future restoration projects use digital soil survey information will be the development of additional attribute tables l i e d to the soils linework. This will occur as more information becomes available through implementation of demonstration projects and is fed back into the adaptive management process.

As an additional item, NRCS and its partners plan to submit a future proposal to CALFED ERP (in 2002) to develop ecological site descriptions as an additional attribute table to the digital soil .surveyliiework.

c. Monitoring and Assessment Plans. In their current published state, the Soil Survey Reports contain descriptive soils information, soils interpretations tables, and aerial photographs depicting soil boundaries on the landscape - all in paper copy format. Although useful in this format, technological advancements in processing data and information electronically have led to a rapidly growing demand for soils information in digital spatial format. Much of this demand is from new users who want soils information as part of their Geographic Information Systems (GIS) to more holistically analyze resource problems, opportunities, solutions and impacts. The use of GIS and other electronic spatial analysis techniques enable resource planners and managers to process lots of information for multiple resources and objectives, and establish linkages in the landscape. Soils information is probably the most basic and one of the most important pieces of information in this system. Soils data *can* be used to identify natural vegetative regimes and communities, wildlife and fisheries habitats, liitations and hazards for various objectives, improvements needed to overcome the limitations and the impact of selected land uses on the environment. The primary biological and ecological objective of this proposal is to assure that soils information becomes a part of any long-term comprehensive plan to restore the ecological health and improve water management for beneficial uses of the Bay-Delta system.

Since this is not an implementation or demonstration/pilot project, no additional specific monitoring data will be collected.

d. Data Handling and Storage. The final certified digital soils database including liiework and attribute tables will be made available to the public in various forms, including serving it up on an ftp site to be available continuously nationwide, and distributing it in CD form, as requested. In addition, local NRCS offices will make the digital soils information available to the public by having the necessary hardware and

software installed at the field office location to demonstrate the use of the data in planning and implementing restoration projects.

e. Expected **Products/Outcomes.** The deliverable products of the project will include a certified digital soils database including liiework and attribute tables. The expected outcome from the development of this product is to make soils information more accessible to individuals and groups engaged in ecosystem restoration projects in the Bay-Delta Region, and by doing so, improve the responsiveness of these projects to establishing habitat and supporting sustainable populations of valuable species. In addition, there is an expectation that additional soil attribute tables will be developed over time (by NRCS and other entities) . . . we learn from the implementation of projects **through** the adaptive management process.

f. Work Schedule. The proposed work schedule is outlined, by **task,** in ***Section b. Approach,*** above. The work schedule is described in terms of the month the task will begin and end. The months are numbered to correlate with the date the agreements are signed and authority is given to proceed with the work. For example, Month 1 is the first month after all agreements are signed.

The project milestones are:

Milestone	**Month** Achieved
Procurement of all DOQ's	Month 12
Release of first Certified Digital Soil Survey	Month 12
Soil Attribute Tables Completed	Month 18
Recompilation Complete for all 12 Survey Areas	Month 20
Line Work Digitized and Edited for all 12 Survey Areas	Month24
Certification Completed by NRCS Digitizing Center	Month 30
Official Release of last Digital Soil Survey	Month 31

Total funding for this proposal is being requested in the amount **of** $730,600 from CALFED. There is potential to incrementally fund the proposed scope of work, by breaking the work down by the different Soil Survey Areas. In other words, if only limited funding were available, the project could be funded by individual Soil Survey Area. For example, the Sonoma County Soil Survey could be funded at $53,000 CALFED funds and $25,500 NRCS funds, and a complete product (the certified digital soil database for Sonoma County) could be delivered. Any one or combination of the soil survey areas being proposed for digitizing could be selected to develop various funding scenarios. The anticipated payments as they relate to **tasks** are shown in the budget section of this proposal.

g. Feasibility. Tasks, budget costs, and schedule estimates were developed based on NRCS's history in producing these types of products, and represent reasonable estimates. The proposal includes **utilizing** a full-time project coordinator (soil scientist position) to oversee overall completion of the digital soil surveys, and two full-time positions (soil scientists) to handle the correlation issues (part of recompilation task). These staff positions will manage the various components of the project to ensure its completion on budget

and on time. Portions of the project will be contracted out with well-known entities with whom NRCS has had long-established relations (USGS for DOQs, and NRCS Digitizing Center for recompilation and digitizing).

No NEPA or CEQA documents will have to be prepared for the project. No environmental permits will be required.

Timing of the project is outlined in the *f. Work Schedule* section, and covers a 31-month time period. The 31 months begin as soon as NRCS has authority to proceed with the project (i.e. as soon as an agreement has been signed with CALFED).

There are no anticipated exigencies that would prevent completion of this project. As a result, the risk is very low that the project will not proceed as planned and produce the expected outcomes.

C. Applicability to **CALFED** ERP Goals and Implementation Plan and CVPIA Priorities.

1. ERP **Goals** and **CVPIA** Priorities.
The natural resource information provided with digital soils data will help achieve parts of all six of the Ecosystem Restoration Strategic Goals. At-risk species will benefit by using digital soils information to identify native plant species most suitable for habitat restoration. In addition, soils information can tell us a lot about the geologic and ecosystem processes that affect the natural aquatic and associated terrestrial biotic communities, and thus help in setting management strategies to maintain these processes. By knowing soil types and land capabilities, a wide array of habitats can be restored. Digital soils information can help in identifying and mapping non-native invasive vegetation, and thus contribute to their eradication. And, soils information is critical in identifying sediment sources and movement within a watershed.

The primary biological and ecological objectives of this proposal are to assure that soils information becomes a part of any long-term comprehensive plan to restore the ecosystems and ecological health of the Bay-Delta system. The use of digital spatial soils information in a GIS database is an important tool for identifying specific stressors impacting priority species and habitats, and establishing linkages and interactions between stressors, species and habitats. Digital spatial soils data is also used in looking at watershed-level systems and impacts, which is critical to achieving success in restoration projects. Completion of this proposal (using resources from NRCS and **CALFED**) will provide digital spatial **soils** information for most of the counties in the Bay-Delta Region by the year 2003 ***(see State Map on Status of Digital Soil Surveys).***

The expected benefits of this proposal are closely tied to the expected third party impacts, since soils information is typically the basis from which planners, managers and other "third parties" begin to add value. In general, expected benefits include higher quality planning efforts, greater information for successful completion of restoration projects and their associated benefits, availability of digital soils information to GIS users, improved correlation of resources within a region, reduced conflicts between various stakeholders, and eventual restoration of the Bay-Delta ecosystem.

Soils data and associated information are used by state and federal government agencies involved in natural resource management, local governments trying to improve their land use policies, local groups interested in understanding and better managing the watersheds they live in, and private consultants hired by all of the above to deliver products and services associated with these natural resource goals. Specific uses include land use planning; watershed-level planning; ecosystem management; floodplain management; managing

farms, ranches, rangeland, woodland and other private lands; evaluating areas for houses and building site development; siting for road construction; siting for septic filter/leach fields and sewage lagoons; landscaping decisions; purchase of property (and assessing land values); agricultural productivity potential; vegetative cover and production potentials; siting for pond and reservoir construction; development of recreation facilities; wildlife development and habitat improvement; planning soil and water conservation activities to address soil erosion and other resource issues; siting for disposal of liquid and solid wastes; and a host of other applications.

Data collected as a part of these soil surveys includes information on soils properties such as permeability, water-holding capacity, infiltration rate, flooding hazard, seasonal wetness and depth to water table (hydric soils), depth to bedrock, stoniness, texture (amounts of sand, silt, clay), soil erodibility, acidity and alkalinity, slope, saliity, cation exchange capacity, load bearing capacity, shrink-swell potential, corrosivity, structure and a host of other attributes (*for a* complete list, see Appendix A - ***Description of*** **Soil** Attribute Tables).

Soils characteristics and properties are important pieces of information when trying to address the specific stressors impacting priority species and habitats. For example, the CALFED Bay-Delta Program Technical Team identified the following stressors to priority species and habitats: a) Alteration of flows and other effects of water management, b) Floodplain and Marshplain changes, c) Channel form changes, d) Water Quality, e) Water Temperature, f) Undesirable Species Interactions, g) Adverse Fish and Wildlife Harvest Impacts, h) Population Management, i) Land Use, j) Artificial Propagation of Fish, **k)** Climate, 1) Human Disturbance, and m) Wildfire. Soils information is potentially relevant to all of these categories, especially in terms of runoff potential, erodibility, sedimentation of river systems, land use decisions, degradation or aggradation of channels, recommendations on the use of lire for habitat management, forestry and agricultural practices, identification of floodplains and wetlands, management of floodplains, location of gravel mining operations, control of invasive and exotic plant species, turbidity, analysis of soil salinity, potential for selenium and other mineral contamination, vegetation establishment in riparian areas, tributary sediment control, gravel armoring, streambank stabilization and fine sediment deposition.

The CALFED Ecosystem Restoration Program, Strategic Plan, calls for adaptive management and contains a monitoring program to acquire and evaluate data needed regarding indicators, and a research program to acquire additional data needed to evaluate program alternatives and options (p. **15,** Volume I, ERP, January, 1999). This project fits in with these objectives and programs. In addition, the ERP (p. **18,** Volume I, ERP, January, 1999), calls for "engaging local watershed organizations in planning and implementing the CALFED Program." Local watershed groups are seeking digital spatial soils information from which to plan their ecological and biological restoration projects.

2. Relationship to Other Ecosystem Restoration Projects.

This project relates to other previously funded projects, future funded projects, and future ERP actions and goals, especially those related to monitoring and assessment and the development of watershed management plans for ecosystem restoration. Watershed-level planning should occur from *a* scientific basis, **using** accurate data as its foundation. Soil survey data provides this scientific basis for planning. The soils information, including attribute and interpretationstables, allow planners to assess and analyze conditions in an ecosystem or watershed context, develop and evaluate alternatives, and implement solutions to restore ecosystems.

3. Requests for Next-Phase Funding. Not Applicable.

4. Previous Recipients of CALFED or CVPIA funding: Not Applicable.

5. System-Wide Ecosystem Benefits. The expected ecological/biological benefits from this proposal are long-term in nature. Soils information is typically used in both planning and implementation phases of projects and the extent to which this soils information is made available to users in various formats will help determine the effectiveness of long-term planning and implementation projects. This project complements other projects by providing soils information to those proposals to develop and implement watershed plans. The extent of the project and its comprehensive nature (i.e. the goal is to have digital spatial soils information available in all counties of the Bay-Delta Region) will provide system-wide benefits by being able to look at the entire Bay-Delta Region in an integrated fashion.

This proposal will also help meet the CALFED non-ecosystem objectives of providing good water quality for all beneficial uses; reducing the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system; and reducing the **risk** to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic failure of Delta levees.

E. Qualifications. Public Law 74-46, 49 Stat. **163;** 16 U.S.C. 590a-f (April 27, 1935), also known as the Soil Conservation and Domestic Allotment Act, vested certain powers in the Secretary of Agriculture with respect to the control and prevention of soil erosion and provided for the Soil Conservation Service (now, the Natural Resources Conservation Service) to be established as the agency to exercise these powers. One of the authorities granted the Secretary in this Act was that of conducting a soil survey program so as to make available soil surveys needed by States and other public agencies, including community development districts. The actual language used in the Act emphasized the use of soils information in community planning and resource development, including improving the quality of the environment:

> Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in recognition of the increasing need for soil surveys by the States and other public agencies in connection with community planning and resource development for protecting and improving the quality of the environment, meeting recreational needs, conserving land and water resources, providing for multiple uses of such resources, and controlling and reducing pollution from sediment and other pollutants in areas of rapidly changing uses, including farmlands being shifted to other uses, resulting from rapid expansions in the uses of land for industry, housing, transportation, recreation, and related services, it is the sense of Congress that the soil survey program of the United States Department of Agriculture should be conducted so as to make available soil surveys to meet such needs of the States and other public agencies in connection with community planning and resource development, and other purposes. **(42 U.S.C. 3271)**

Soil Surveys are a primary line of business within NRCS. Quality digital soils data is a relatively new product being requested by the agency's customers and clients. The NRCS has stepped up efforts to produce soil surveys in a digital format by establishing a digitizing infrastructure. Map recompilation centers and map digitizing centers have been established as part of this NRCS infrastructure along with trained NRCS state office and survey office staffs.

The National Cooperative Soil Survey (NCSS) is a nationwide partnership of federal, regional, state, and local agencies and institutions that cooperatively inventory, investigate, classify, interpret, disseminate, and

maintain information about the soils of the United States and its trust temtories and commonwealths. The NRCS provides leadership for the NCSS.

The NRCS soil survey program is carried out under the auspices of the National Cooperative Soil Survey. The NRCS collects soil data, establishes staudards for inventorying, describing and interpreting soils, makes maps and databases, interprets the maps and data, promotes their use, conducts research, assists nationally and internationally with the wise use of soil resources, responds to needs of users of soil survey information, and develops and enhances the skills of pedologists.

Program activities include developing and applying scientific methods uniformly to:

1. Define, describe, and record soil characteristics;
2. Classify soils;
3. Map areas of soils with similar response to defined uses and management;
4. Better understand soil genesis and morphology;
5. Maintain current soil information in digital, tabular, text, and other forms that are easily accessible for public use;
6. Interpret basic soil data and soil maps for practical application;
7. Investigate, research, and develop new applications to improve the use of soil resources for the public benefit; and
8. Assist others in the use of soil survey information for specific resource and environmental concerns.

The NRCS State Office in Davis, California is site of one of the agency's Regional MLRA (Soils) Offices, with the infrastructure, technical support and administrative staff to provide the deliverables described in this project proposal. Two new GS-12 soil scientist positions will be established to oversee completion of these digital soils and orthophotoquad products in the Bay-Delta Region. The NRCS Davis State Office is set up to provide the administrative support and systems to successfully complete this project. Specific project oversight will be provided by Eric Vinson, State Soil Scientist for NRCS in Davis. Eric is a graduate of CalPoly, Pomona. He has worked as a soil scientist with NRCS in California since July 1974, including working on soil surveys in San Luis Obispo County and Sutter County. He has been State Soil Scientist for California and MLRA Leader for the Pacific Southwest MLRA Region since October, 1995, which includes over 30 soil survey areas and oversight on the soils activities of over 30 soil scientists in three states and the Pacific Basin.

F. *Cost.*

1 Budget. Costs are presented in two different formats, including a breakdown by soil survey area (below) and in detail by project task (Table 1).

costs

Costs and Schedule to Implement Proposed Project

(For project budget details, see Table 1 – Budget Costs Detail)

a. Budget Costs Summary:

Item	CALFED Funds	NRCS Funds	TOTAL Cost
Previous Work/Investment in Target Area: Soil Survey Completed Work in Bay-Delta Region	**0**	**$22,480,000**	**$22,480,000**
Current Project Proposal – Digitize **9** Soil Surveys **in 6** Targeted Areas **(2000-2003):**			
Target Area **2** – Suisun Marsh/San Francisco Bay			
Sonoma County **(097)** Soil Survey			
Task #1: Imagery Production (DOQ)	0	0	0
Task #2: Map Recompilation	20,000	2,500	22,500
Task **#3:** Soils Attribute Tables	4,000	15,000	19,000
Task #4: Digitizing/Certifying	20,000	5,000	25,000
Task #5: Official Public Release	2,000	3,000	5,000
Task **#6:** Project Management	7,000	0	7,000
Grand Total:	**$53,000**	**$25,500**	**$78,500**
Target Area **3** – Sacramento River *(Also* **effects** Target Areas **5, 6, 7)**			
Glenn County **(021)** and Tehama County **(645)** Soil Surveys			
Task #1: Imagery Production (DOQ)	78,000	20,000	*98,000*
Task #2: Map Recompilation	45,000	7,000	50,000
Task **#3:** Soils Attribute Tables	9,000	30,000	39,000
Task #4: Digitizing/Certifying	40,000	11,000	51,000
Task #5: Official Public Release	4,000	6,000	10,000
Task **#6:** Project Management	14,000	0	14,000
Grand Total:	**$188,000**	**$74,000**	**$262,000**
Target Area **4 – North** Sacramento Valley *(Also* **effects** Target Area **5)**			
Shasta County **(607) Soil** Survey			
Task #1: Imagery Production (DOQ)	40,000	15,000	55,000
Task #2: Map Recompilation	20,000	2,500	22,500
Task #3: Soils Attribute Tables	4,000	15,000	19,000
Task #4: Digitizing/Certifying	20,000	5,000	25,000
Task #5: Official Public Release	2,000	3,000	5,000
Task #6: Project Management	8,000	0	**8,000**
Grand Total:	**$94,000**	**$40,500**	**$134,500**

Item	CALFED Funds	NRCS Funds	TOTAL cost
Target Area 8 – Feather River and Sutter Basin Nevada Area (619) Soil Survey			
Task #1: Imagery Production (DOQ)	0	0	0
Task #2: Map Recompilation	10,000	2,500	12,500
Task #3: Soils Attribute Tables	2,000	13,000	15,000
Task #4: Digitizing/Certifying	20,000	5,000	25,000
Task #5: Official Public Release	2,000	3,000	5,000
Task #6: Project Management	7,000	0	7,000
Total:	$41,000	$23,500	$64,500
Target Area 11 – East Side Delta Tributaries Amador Area (628) Soil Survey			
Task #1: Imagery Production (DOQ)	0	0	0
Task #2: Map Recompilation	9,500	2,500	12,000
Task #3: Soils Attribute Tables	2,000	12,500	14,500
Task #4: Digitizing/Certifying	20,000	5,000	25,000
Task #5: Official Public Release	2,000	3,000	5,000
Task #6: Project Management	7,000	0	7,000
Total:	$40,500	$23,000	**$63,500**
Target Area 12 – San Joaquin River ***(Also*** effects Target Area 13) East Stanislaus Area **(644),** Merced Area **(648),** and Madera Area (651) Soil Surveys			
Task #1: Imagery Production ***(DOQ)***	160,300	23,890	184,190
Task #2: Map Recompilation	51,600	10,809	62,409
Task #3: Soils Attribute Tables	6,481	35,547	42,028
Task #4: Digitizing/Certifying	67,843	21,346	89,189
Task #5: Official Public Release	6,630	9,809	16,439
Task #6: Project Management	21,246	0	21,246
Total:	$314,100	$101,401	$415,501
Grand Totals	$730,600	$287,901	$1,018,501

Development ***of*** this budget is based on completion **of** 9 targeted Soil Survey Areas and purchase **of** updated Digital Orthophotoquads (1993 DOQ). **This proposal** cost could be reduced by limiting the number of targeted Soil Survey Areas to less than 9.

Table 1 - Budget Costs Detail - Targeted 9 Soil Survey Areas, Bay-Delta Region								
Project Phase and Task	Direct Labor (Hours)	Direct Salary & Benefits $	Overhead, General Admin $	Service Contracts $	Material & Acquistn Contracts $	Misc & Other Direct Costs $	Total Cost $	
A. Previous Work/Investment - Completion of Surveys In Bay-Delta Region								
CALFED	*0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	
NRCS	*425,000*	*$13,547,384*	*$2,932,108*	*$3,000,000*	*$3,000,000*	*$0*	*$22,479,492*	
B. Current Project Proposal								
Task #1 - Procure DOQ & Hardcopy Imagery								
CALFED	0	$0	$36,300	$242,000	$0	$0	$278,300	
NRCS	1,440	$51,208	$7,681	$0	$0	$0	$58,889	
Task #2 - Recompile Survey Atlas Sheets								
CALFED	0	$0	$20,100	$134,000	$0	$0	$154,100	
NRCS	680	$24,181	$3,627	$0	$0	$0	$27,809	
Task #3 - Develop Soils Attributes Tables								
CALFED	672	$23,897	$3,585	$0	$0	$0	$27,481	
NRCS	2,960	$105,260	$15,789	$0	$0	$0	$121,049	
Task #4 - Digitizing & Certification of Linework								
CALFED	1,500	$53,341	$24,501	$110,000	$0	$0	$187,843	
NRCS	1,280	$45,518	$6,828	$0	$0	$0	$52,346	
Task #5 - Official Public Release								
CALFED	0	$0	$2,430	$0	$16,200	$0	$18,630	
NRCS	680	$24,181	$3,627	$0	$0	$0	$27,809	
Task #6 - Project Management								
CALFED	1,571	$55,866	$8,380	$0	$0	$0	$64,246	
NRCS	0	$0	$0	$0	$0	$0	$0	
SUBTOTAL, Current Project Phase								
CALFED	3,743	133,104	95,296	486,000	16,200	0	730,600	
NRCS	7,040	250,349	37,552	0	0	0	287,901	
TOTAL	10,783	$383,453	$132,848	$486,000	$16,200	$0	$1,018,501	
Notes: Salaries for current project proposal based on three GS-12, Step 5 Soil Scientist full-time positions @ 31 months.								
Benefits based on 19% benefits plus 20.4% for leave. Administrative costs based on 15% total project cost.								
Number of hours based on 2087 hours/yr * 3 staff * 31/12 years = 10783 total hours available								

2. Cost-Sharing. This project is being proposed as an enhancement part of an ongoing soil survey program. Total expenditures to date to develop soil surveys (including some digital data products) in the entire Bay-Delta Region are estimated to be over $22 million. Soil survey work has been ongoing here since before the authorization of the program in 1935. Current annual expenditures by NRCS and other National Cooperative Soil Survey partners for survey work in the Bay-Delta Region are about $1,000,000 each fiscal year. Progress of this soil survey work is shown in the map - *Status of Soil Surveys in California.* These expenditures are considered part of the ongoing program. The project being proposed for CALFED funding is to enhance the soil survey work by making it available in electronic digital format.

NRCS has invested approximately $22.5 million in previous years in the Bay-Delta Region. This investment was primarily in the initial development of the published soil surveys. The NRCS share of the current proposed project cost is $287.901, or 28% of the total cost of digitizing the 9 soil survey areas.

***G*. Local Involvement.** All of the local counties affected by the completion of digital spatial soils information are being notified in writing of USDA Natural Resources Conservation Service's intent to submit a proposal to CALFED under the Category III RFP (copies of notification letters attached). All soil survey mapping conducted by USDA NRCS is coordinated with local county governments. All digital spatial soils information will be made available to local county supervisors, county planning departments, local watershed groups, other federal and state agencies, tribal governments; and others, free of charge.

It is estimated that 100 percent of local county governments and 75 percent of the local watershed groups within the Bay-Delta area are aware of USDA-NRCS's soil survey program and value this soils information as part of their planning processes. A smaller percentage of the counties (estimated at 50%) and local watershed .groups (estimated at 25%) have GIS Capabilities and would be in a position to currently utilize this digital spatial soils information. However, several more counties and local groups will have increased GIS capabilities by the end of the project (year 2003). In addition, the local offices of NRCS will be set up with the hardware and software to provide public access to the digital soils information.

There is significant local support for this proposal. The California Association of Resource Conservation Districts, a statewide organization of local Resource Conservation Districts (RCDs), has passed a resolution supporting the completion of soil survey coverage in California and have requested the California State Legislature to provide matching funding to complete statewide coverage (resolution attached). In addition, Yolo County RCD has stated specific support for the use of digital spatial soils information in planning restoration projects in Yolo and adjoining counties. Attached to the end of this proposal are several letters of support from state and local entities, and the private sector.

There are no adverse impacts anticipated as a result of this project. Primary "third party" impacts will be improved quality of planning efforts and the subsequent restoration of natural resources and systems in the Bay-Delta ecosystem. Planners and managers using GIS will benefit from this proposal by having soils data available to them, free of charge, in electronic digital format. These users typically include local governments, planning commissions, state government agencies, federal government agencies, universities, resource conservation and other special districts, water contractors, local watershed groups, and private businesses. Secondary impacts include increased economic activity from private businesses developing value-added products and services from basic digital soils data.

H. Compliance **with** Standard Terms and Conditions.
The USDA Natural Resources Conservation Service is a federal public agency (entity) submitting a proposal under the Local Watershed Stewardship category. As a result, the requirement to comply with the standard terms of the proposal is to submit DWR Forms 4099A and 4247 (attached). In addition, we are submitting a statement of Non-Discrimination compliance. This statement follows:

> Activities conducted under this agreement will be in compliance with the nondiscrimination provisions as contained in Titles VI and VII of the Civil Rights Act of 1964, as amended, the Civil Rights Restoration Act of 1987 (Public Law 100-259) and other Rehabilitation Act of 1973, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, and in accordance with regulations of the Secretary **of** Agriculture (7 CFR-15, Subparts A and B) which provide that no person in the United States shall, on the grounds of race, color, national origin, age, sex, religion, marital status, or handicap be excluded fiom participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal financial assistance fiom the Department of Agriculture or any agency thereof.

The Natural Resources Conservation Service agrees to comply with all other standard terms and conditions of the CALFED prograni contained in Attachment D (State) and Attachment E (Federal) of the 2001 PSP. ***(Forms DWR 4099A and DWR 4247 attached).***

I. Literature Cited.

Odum, Eugene P., Fundamentals of Ecology, 3rd Edition, W.B. Saunders Company, Philadelphia, 1971.

Brady, Nyle C., The Nature and Properties of Soils, 8th Edition, Macmillan Publishing Co., Inc., New York, 1974.

Soil Survey Staff, USDA, Natural Resources Conservation Service, National Soil Survey Handbook, Title 430-VI, Part 647, Soil Map Development, and part 648, Soil Geographic Databases, Washington, D.C., U.S. Government Printing Office, September, 1998.

Soil Survey Staff, USDA, Natural Resources Conservation Service, Soil Survey Manual, USDA Handbook No. 18, Washington, D.C., U.S. Government Printing Office, October, 1993.

J. Threshold Requirements.

Attached are the following threshold requirements:

- Letters of Notification
- Environmental Compliance Checklist
- Land Use Checklist
- Contract Forms ***(Forms DWR 4099A and DWR 4247 attached)***

Also attached are several letters of support for this project and a list of standard soil attribute tables that would be part of a completed digital soil database.

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California 956164164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Delta Protection Commission
14215 River Road
P.O. Box 530
Walnut Grove, CA 95690

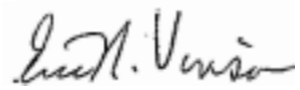
Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 -
Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region

The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) and its conservation partners have submitted a funding proposal to CALFED under the Local Watershed Stewardship option of the 2001 Ecosystem Restoration Program. Specific funding of $730,600 is being requested from CALFED to rectify and digitize a large portion of the county-based soil maps in the Bay-Delta region. If 111y funded, NRCS would recompile and digitize 9 published Soil Survey Reports covering 7,385,686 acres, or 400 quad sheets of data (USGS 1:24,000 scale), within a 3-year timeframe.

The county areas included in this proposal are: Shasta Area, Tehama County, Glenn County, Nevada Area, Amador Area, Eastern Stanislaus Area, Merced Area, Madera **Area,** and Sonoma County., Deliverable products will include two digital data layers for these 9 Soil Survey Areas: 1) Digital Orthophotoquads ***(DOQ)*** data layer, and 2) a certified electronic digital soils data layer with accompanying soil property and interpretations attribute tables. The primary objective of this proposal is to assure that **soils** information, including soil capabilities and limitations, become a part of any long-term comprehensive plan to restore the ecological health and improve water management in the Bay-Delta system.

This letter is to notify you that your county has been included in this grant proposal. Questions on the proposal or any of the proposed soil survey products should be addressed to me at the above address and phone number, or E-mail to: Eric.Vinson@ca.usda.gov

Sincerely,



ERIC N. VINSON
State Soil Scientist

Attachment

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, if4164
Davis, California 95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Bay Conservation and Development Commission
30 Van Ness Avenue, Room 2011
San Francisco, CA 94102

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 -
Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region

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Sincerely,

ERIC N. VINSON
State Soil Scientist

Attachment

USDA, United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California956164164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Amador County
Clerk of the Board of Supervisors
500 Argonaut Lane
Jackson, CA 95642

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) and its conservation partners have submitted a funding proposal to CALFED under the Local Watershed Stewardship option of the 2001 Ecosystem Restoration Program. Specific funding of $730,600 is being requested from CALFED to rectify and digitize a large portion of the county-based soil maps in the Bay-Delta region. If fully funded, NRCS would recompile and digitize 9 published Soil Survey Reports covering 7,385,686 acres, or 400 quad sheets of data (USGS 1:24,000 scale), within a 3-year timeframe.

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This letter is to notify you that your county has been included in this grant proposal. Questions on the proposal or any of the proposed soil survey products should be addressed to me at the above address and phone number, or E-mail to: Eric.Vinson@ca.usda.gov

Sincerely,

ERIC N. VINSON
State Soil Scientist

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California 95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Amador County
Clerk of the County Planning Department
500 Argonaut Lane
Jackson, CA 95642

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) and its conservation partners have submitted a funding proposal to CALFED under the Local Watershed Stewardship option of the 2001 Ecosystem Restoration Program. Specific funding of $730,600 is being requested fiom CALFED to rectify and digitize a large portion of the county-based soil maps in the Bay-Delta region. If fully funded, NRCS would recompile and digitize **9** published Soil Survey Reports covering 7,385,686 acres, or 400 quad sheets of data (USGS 1:24,000 scale), within a 3-year timeframe.

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Sincerely,

Eric N. Vinson

ERIC N. VINSON
State Soil Scientist

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California 956164164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Glenn County
Clerk of the County Planning Department
526 W. Sycamore Street
Willows, CA 95988

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) and its conservation partners have submitted a funding proposal to CALFED under the Local Watershed Stewardship option of the 2001 Ecosystem Restoration Program. Specific funding of $730,600 is being requested from CALFED to rectify and digitize a large portion of the county-based soil maps in the Bay-Delta region. If fully funded, NRCS would recompile and digitize 9 published Soil Survey Reports covering 7,385,686 acres, or 400 quad sheets of data (USGS 1:24,000 scale), within a 3-year timeframe.

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Sincerely,

Eric N. Vinson

ERIC N. VINSON
State Soil Scientist

USDA
United States Department of Agriculture
Natural Resources Conservation Service
430 G Street, #4164
Davis, Califomia95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Glenn County
Clerk of the Board of Supervisors
526 W. Sycamore Street
Willows, CA 95988

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

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Sincerely,

Eric N. Vinson

ERIC N. VINSON
State Soil Scientist

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California 95616-4164
(530) 792-5640
FAX 192-5794

May 15,2000

To: Madera County
Clerk of the Board of Supervisors
209 W. Yosemite Avenue
Madera, CA 93637

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

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Sincerely,

Eric N. Vinson

ERIC N. VINSON
State Soil Scientist

USDA United States Depamnent of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California956164164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Madera County
Clerk of the County Planning Department
209 W. Yosemite Avenue
Madera, CA 93637

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mupping and Digital Orthophotoquad Development for the Buy-Deltu Region***

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Sincerely,

Eric N. Vinson

ERIC N. VINSON
State Soil Scientist

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California956164164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Merced County
Clerk of County Planning Department
2222 M Street
Merced, **CA 95340**

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 -
Digital Soil Survey Mapping and Digital Orthophotoquad Developmentfor the Bay-Delta Region

The United States Department of Agriculture, Natural Resources Conservation Service **(USDA-NRCS)** and its conservation partners have submitted a funding proposal to CALFED under the Local Watershed Stewardship option of the 2001 Ecosystem Restoration Program. Specific funding of $730,600 is being requested from CALFED to rectify and digitize a large portion of the' county-based soil maps in the Bay-Delta region. If lll y funded, NRCS would recompile and digitize 9 published Soil Survey Reports covering 7,385,686 acres, or 400 quad sheets of data (***USGS*** 1:24,000 scale), within a 3-year timefiame.

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Sincerely,

ERIC N. VINSON
State Soil Scientist

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California 95616-4164
(530) 192-5640
FAX 192-5194

May 15,2000

To: Merced County
Clerk of the Board of Supervisors
2222 M Street
Merced, CA 95340

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) and its conservation partners have submitted a funding proposal to CALFED under the Local Watershed Stewardship option of the 2001 Ecosystem Restoration Program. Specific funding of **$730,600** is being requested from CALFED to rectify and digitize a large portion of the county-based soil maps in the Bay-Delta region. If fully funded, NRCS would recompile and digitize 9 published Soil Survey Reports covering **7,385,686** acres, or 400 quad sheets of data (USGS 1:24,000 scale), within a 3-year timeframe.

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Sincerely,

ERIC N. VINSON
State Soil Scientist

USDA
United states
Department of
Agriculture

Natural Resources
Conservation
Service

430 G Street, #4164
Davis, California956164164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Nevada County
Clerk of the Board of Supervisors
950 Maidu Avenue
Nevada City, CA 95959

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 -
Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region

The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) and its conservation partners have submitted a funding proposal to CALFED under the Local Watershed Stewardship option of the 2001 Ecosystem Restoration Program. Specific funding of $730,600 is being requested from CALFED to rectify and digitize a large portion of the county-based soil maps in the Bay-Delta region. If fully funded, NRCS would recompile and digitize 9 published Soil Survey Reports covering 7,385,686 acres, or 400 quad sheets of data (USGS 1:24,000 scale), within a 3-year timeframe.

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State Soil Scientist

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California 95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Nevada County
Clerk of the County Planning Department
950 Maidu Avenue
Nevada City, CA 95959

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

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State Soil Scientist

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California 95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Shasta County
Clerk of the County Planning Department
1815 Yuba Street, Suite 1
Redding, CA 96001

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

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United States Department of Agriculture
Natural Resources Conservation Service
430 G Street, #4164
Davis, California95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Shasta County
Clerk of the Board of Supervisors
1815 Yuba Street, Suite 1
Redding, CA 96001

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State Soil Scientist

USDA United States Depamnent of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California 95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Sonoma County
Clerk of the Board of Supervisors
575 Administration Drive #1 OOA
Santa Rosa. CA 95403

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

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Eric N. Vinson

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State Soil Scientist

USDA United States Department of Agriculture
Natural Resources Conservation Service
430 G Street, #4164
Davis, California 95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Sonoma County
Clerk of the County Planning Department
575 Administration Drive #100A
Santa Rosa, CA 95403

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 -
Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region

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Eric N. Vinson

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State Soil Scientist

USDA United States Department of Agriculture
Natural Resources Conservation Service
430 G Street, #4164
Davis, California 95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Stanislaus County
Clerk of the County Planning Department
1100 H Street
Modesto, CA 95354

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

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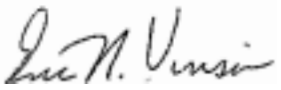
Sincerely,



ERIC N. VINSON
State Soil Scientist

USDA
United States Department of Agriculture
Natural Resources Conservation Service
430 G Street, #4164
Davis, California 95616-4164
(530) 792-5640
FAX 792-5194

May 15,2000

To: Stanislaus County
Clerk of the Board of Supervisors
1100 H Street
Modesto, CA 95354

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

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Natural Resources Conservation Service
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Davis, California956164164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Tehama County
Clerk of the Board of Supervisors
P.O. Box 250
Red Bluff, CA 96080

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping*** *and* ***Digital Orthophotoquad Development for the Bay-Delta Region***

The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) and its conservation partners have submitted a funding proposal to CALFED under the Local Watershed Stewardship option of the 2001 Ecosystem Restoration Program. Specific funding of $730,600 is being requested from CALFED to rectify and digitize a large portion **of** the county-based soil maps in the Bay-Delta region. If 111y funded, **NRCS** would recompile and digitize 9 published Soil Survey Reports covering 7,385,686 acres, or 400 quad sheets of data (USGS 1:24,000 scale), within a 3-year timeframe.

The county areas included in *this* proposal are: Shasta Area, Tehama County, Glenn County, Nevada Area, Amador Area, Eastern Stanislaus Area, Merced Area, Madera Area, and Sonoma County. Deliverable products will include two digital data layers for these Soil Survey Areas: **1)** Digital Orthophotoquads (DOQ) data layer, and 2) a certified electronic digital soils data layer with accompanying soil property and interpretations attribute tables. The primary objective of *this* proposal is to assure that soils information, including soil capabilities and limitations, become a part of any long-term comprehensive plan to restore the ecological health and improve water management in the Bay-Delta system.

This letter is to notify you that your county has been included in this grant proposal. Questions on the proposal or any of the proposed soil survey products should be addressed to me at the above address and phone number, or E-mail to: Eric.Vinson@ca.usda.gov

Sincerely,

ERIC N. VINSON
State Soil Scientist

USDA United States Department of Agriculture

Natural Resources Conservation Service

430 G Street, #4164
Davis, California 95616-4164
(530) 792-5640
FAX 792-5794

May 15,2000

To: Tehama County
Clerk of the County Planning Department
P.O. Box 250
Red Bluff, CA 96080

Subject: Project Proposal to CALFED Ecosystem Restoration Program, 2001 - ***Digital Soil Survey Mapping and Digital Orthophotoquad Development for the Bay-Delta Region***

The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) and its conservation partners have submitted a funding proposal to CALFED under the Local Watershed Stewardship option of the 2001 Ecosystem Restoration Program. Specific funding of $730,600 is being requested from CALFED to rectify and digitize a large portion of the county-based soil maps in the Bay-Delta region. If fully funded, NRCS would recompile and digitize 9 published Soil Survey Reports covering 7,385,686 acres, or 400 quad sheets of data (USGS 1:24,000 scale), within a 3-year timeframe.

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This letter is to notify you that your county has been included in this grant proposal. Questions on the proposal or any of the proposed soil survey products should be addressed to me at the above address and phone number, or E-mail to: Eric.Vinson@ca.usda.gov

Sincerely,

Eric N. Vinson

ERIC N. VINSON
State Soil Scientist

Environmental Compliance Checklist

All applicants must fill out this Environmental Compliance Checklist. Applications must contain answers to the following questions to be responsive and to be considered for funding. ***Failure to answer these questions and include them with the auulication will result in the application being considered nonresponsive and not considered for funding.***

1. **Do** any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), **or** both?

   _____ **YES** X NO

2. **If** you answered yes to # **1,** identify the lead governmental agency for CEQA/NEPA compliance.

   _____
   Lead Agency

3. If you answered no **to** # **1,** explain why CEQA/NEPA compliance is not required for the actions in the proposal.

   The proposed action is the processing of soil survey data into electronic digital format, and therefore does not require CEQA **or** NEPA **compliance.**

4. If CEQA/NEPA compliance is required, describe **how** the project will comply with either **or** both of these laws. Describe where the project is in the compliance process and the expected date of mmpletion.

5. Will the applicant require access across public **or** private property that the applicant does not **own to** accomplish the activities in the proposal?

   _____ **YES** X NO

   If yes, the applicant must attach written permission for access from the relevant property owner(s). Failure to include written permission **for** access may **result** in disqualification **of** the proposal during the review process. **Research** and monitoring field projects for which specific field locations have not been identified will be required to provide ***access*** needs and permission for access with **30** days of notification of approval.

6. Please indicate what permits **or** other approvals may **be** required for the activities contained in **your** proposal. Check all boxes that apply.

LOCAL

Conditional use permit	___	
Variance	___	
Subdivision Map Act approval	___	
Grading permit	___	
General plan amendment	___	
Specific plan approval	___	
Rezone		___
Williamson Act Contract cancellation	___	
Other _____ (please specify)		
None required	X	

STATE

CESA Compliance	___	(CDFG)
Streambed alteration permit	___	(CDFG)
CWA § **401** certification	___	(RWQCB)
Coastal development permit	___	(Coastal Commission/BCDC)
Reclamation Board approval	___	
Notification	___	**(DPC, BCDC)**
Other _____ @leasespecify)		
None required	X	

FEDERAL

ESA Consultation	___	**(USFWS)**
Rivers & Harbors Act permit	___	**(ACOE)**
CWA § **404** permit	___	**(ACOE)**
Other _____ @lease specify)		
None required	X	

DPC = Delta Protection Commission
CWA = Clean Water Act
CESA = Califimia Endangered Species Act
USFWS = U.S. Fish and Wildlife Service
ACOE = U.S. Army Corps of Engineers

ESA = Endangered Species Act
CDFG = Califimia Department of Fish and **Game**
RWQCB = Regional Water Quality Control **Board**
BCDC= Bay Conservation and Development Comm.

Land Use Checklist

All applicants must fill out this Land Use Checklist for their proposal. Applications must contain **answers** to the following questions to be responsive **and** to be considered for funding. ***Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.***

1. Do the actions in the proposal involve physical changes to the land (i.e. grading, planting vegetation, or breeching levees) or restrictions in land use (i.e. conservation easement **or** placement of land in a wildlife refuge)?

_____ **YES** X **NO**

2. If NO to **# 1,** explain what type of actions are involved in the proposal (i.e., research **only,** planning only).

The proposed actions are rectifying and digitizing soil survey linework to Digital Orthophotoquad (DOQ) basemaps and development of soil attribute tables.

3. **If YES to # 1,** what is the proposed land use change or restriction under the proposal?

4. If **YES to # 1,** is the land currently under a Williamson **Act** contract?

_____ **YES** _____ **NO**

5. **If YES to # 1,** answer the following:

Current land use _____
Current zoning _____
Current general plan designation _____

6. **If YES** to **#1,** is the land classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps?

_____ **YES** _____ NO _____ DON'T KNOW

7. **If YES to # 1,** bow many acres of land will be subject to physical change or land use restrictions under the proposal?

_____

8. If **YES** to **# 1,** is the property currently being commercially farmed or grazed?

_____ **YES** _____ NO

9. **If YES to #8,** what are the number of employees/acre_____
the total number of employees_____

10. Will the applicant acquire any interest in land under the proposal **(fee** title **or** a mnservation easement)?

YES	NO
_____	X

11. What entity/organization will hold the interest?_____

12. If **YES** to # 10, answer the following:

Total number of acres to be acquired under proposal	_____
Number of acres to be acquired in fee	_____
Number **of** acres to be subject to conservation easement	_____

13. For all proposals involving physical changes **to** the land **or restriction in** land **use,** describe what entity **or** organization will:

manage the property	_____
provide operations and maintenance services	_____
conduct monitoring	_____

14. For land acquisitions **(fee** title **or** easements), will existing water rights also be acquired?

YES	NO
_____	_____

15. Does the applicant propose any modifications **to** the water right **or** change in the delivery of the water?

YES	NO
_____	X

16. If YES to # **15,** describe_____

STANDARD CLAUSES - SERVICE & CONSULTANT SERVICE CONTRACTS FOR $5,000 & OVER WITH NONPUBLIC ENTITIES

Workers' Compensation Clause. Contractor affirms that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor affirms that it will comply with such provisions before commencing the performance of the work under this contract.

National Labor Relations Board Clause. In accordance with Public Contract Code Section 10296, Contractor declares under penalty of perjury that no more than one final, unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of Contractor's failure to comply with an order of a federal court which orders Contractor to comply with an order of the national Labor Relations Board.

Nondiscrimination Clause. During the performance of this contract, the recipient,Coontractor and its subcontractors shall not deny the contract's benefits to any person on the basis of religion, color, ethnic group identification, sex, age, physical or mental disability, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, mental disability, medical condition, marital status, age (over 40), or sex. Contractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination. Contractor shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.), the regulations promulgated thereunder (California Administrative Code, Title 2, Sections 7285.0 et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Government Code Sections 11135 - 11139.5), and the regulations or standards adopted by the awarding State agency to implement such article. Contractor or recipient shall permit access by representatives of the Department of Fair Employment and Housing and the awarding State agency upon reasonable notice at any time during the normal business hours, but in no case less than 24 hours' notice, to such of its books, records, accounts, other sources of information and its facilities as said Department or Agency shall require to ascertain compliance with this clause. Recipient, Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

Statement of Compliance. The Contractor's signature affixed hereon and dated shall constitute a certification under penalty of perjury under the laws of the State of California that the Contractor has, unless exempted, complied with the nondiscrimination program requirements of Government Code Section 12990 and Title 2, California Code of Regulations, Section 8103.

Performance Evaluation. For consulting service agreements, Contractor's performance under this contract will be evaluated after completion. A negative evaluation will be filed with the Department of General Services.

Availability of Funds. Work to be performed under this contract is subject to availability of funds through the State's normal budget process.

Audit Clause. For contracts in excess of $10,000, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after final payment under the contract. (Government Code Section 8546.7).

Payment Retention Clause. Ten percent of any progress payments that may be provided for under this contract shall be withheld per Public Contract Code Sections 10346 and 10379 pending satisfactory completion of all services under the contract.

Reimbursement Clause. If applicable, travel and per diem expenses to be reimbursed under this contract shall be at the same rates the State provides for unrepresented employees in accordance with the provisions of Title 2, Chapter 3, of the California Code of Regulations. Contractor's designated headquarters for the purpose of computing such expenses shall be: _____.

Disabled Veteran Business Enterprise Participation Requirement Audit Clause. Contractor or vendor agrees that the awarding department or its delegates will have the right to review, obtain, and copy all records pertaining to performance of the contract. Contractor or vendor agrees to provide the awarding department or its delegatee access to its premises, upon reasonable notice, during normal business hours for the purpose of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to a matter under investigation for the purpose of determining compliance with Public Contract Code Section 10115 et seq. Contractor or vendor further agrees to maintain such records for a period of three (3) years after final payment under the contract. Title 2 CCR Section 1896.75.

Priority Hiring Considerations. For contracts in excess of $200,000, the Contractor shall give priority consideration in filling vacancies in positions funded by the contract to qualified recipients of aid under Welfare and Institutions Code Section 11200. (Public Contract Code Section 10353).

Drug-Free Workplace Certification. By signing this contract, the Contractor or grantee hereby certifies under penalty of perjury under the laws of the State of California that the Contractor or grantee will comply with the requirements of the Drug-Free Workplace Act of 1990 (Government Code Section 8350 et seq.) and will provide a drug-free workplace by taking the following actions:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations.

2. Establish a Drug-Free Awareness Program to inform employees about all of the following:

   (a) The dangers of drug abuse in the workplace,
   (b) The person's or organization's policy of maintaining a drug-free workplace,
   (c) Any available counseling, rehabilitation and employee assistance programs, and
   (d) Penalties that may be imposed upon employees for drug abuse violations.

3. Every employee who works on the proposed contract or grant:

   (a) Will receive a copy of the company's drug-free policy statement, and
   (b) Will agree to abide by terms of the company's statement as a condition of employment on the contract or grant.

This contract or grant may be subject to suspension of payments or termination, or both, and the Contractor or grantee may be subject to debarment if the department determines that: (1) the Contractor or grantee has made a false certification, or (2) the Contractor or grantee violates the certification by failing to carry out the requirements noted above.

Antitrust Claims. In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder. See Government Code Section 4552.

If an awarding body or public purchasing body received, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery. See Government Code Section 4553.

Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action. See Government Code Section 4554.

Americans With Disabilities Act. By signing this contract, Contractor assures the state that it complies with the Americans With Disabilities Act (ADA) of 1990, (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

Corporate Qualifications To Do Business In California. Contractor must be currently qualified to do business in California as defined by the Revenue & Taxation Code, Section 23101 unless exempted. Both domestic and foreign corporations (those incorporated outside of California) must be in good standing in order to be qualified to do business in California.

Former State Employees: a) For the two-year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. b) For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

Agreement No.: _____

Exhibit: _____

ADDITIONAL STANDARD CLAUSES

Recycled Materials. Contractor hereby certifies under penalty of perjury that _____ (enter value or "0") percent of the materials, goods and supplies offered or products used in the performance of this Agreement meet or exceed the minimum percentage of recycled material as defined in, Sections 12161 and 12200 of the Public Contract Code.

Severability. If any provision of this Agreement is held invalid or unenforceable by any court of final jurisdiction, it is the intent of the parties that all other provisions of this Agreement be construed to remain fully valid, enforceable, and binding on the parties.

Governing Law. This Agreement is governed by and shalf be interpreted in accordance with the laws of the State of California.

Y2K Language. The Contractor warrants and represents that the goods or services sold, leased, or licensed to the State of California, its agencies, or its political subdivisions, pursuant to this Agreement are "Year 2000 compliant" For purposes of this Agreement, a good or service is Year 2000 compliant if it will continue to fully function before, at, and after the Year 2000 without interruption and, if applicable, with full ability to accurately and unambiguously process, display, compare, calculate, manipulate, arid otherwise utilize date information, This warranty and representation supersedes all warranty disclaimers and limitations and all limitations on liability provided by or through the Contractor.

Child Support Compliance Act For any agreement in excess of $100,000, the Contractor acknowledges in accordance therewith, that:

1. The Contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable State and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing wifh Section 5200) of Part 5 of Division 9 of the Family Code; and

2. The Contractor, to the best of its knowledge, is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

Agreement No. _____

Exhibit _____

STANDARD CLAUSES – CONTRACTS WITH THE UNITED STATES

Workers' Compensation Clause. Contractor affirms that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor affirms that it will comply with such provisions before commencing the performance of the work under this contract. This provision shall apply to the extent provided by federal laws, rules and regulations.

Claims Dispute Clause. Any claim that Contractor may have regarding the performance of this agreement including, but not limited to, claims for additional compensation or extension of time, shall be submitted to the Director, Department of Water Resources, within thirty days of its accrual. State and Contractor shall then attempt to negotiate a resolution of such claim and process an amendment to this agreement to implement the terms of any such resolution. However, Contractor does not waive any rights or duties it may have as may be provided by federal laws, rules and regulations.

Nondiscrimination Clause. During the performance of this contract, the recipient, contractor and its subcontractors shall not deny the contract's benefits to any person on the basis of religion, color, ethnic group identification, sex, age, physical or mental disability, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, mental disability, medical condition, marital status, age (over 40), or sex. Contractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination. Contractor shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.), the regulations promulgated thereunder (California Administrative Code, Title 2, Sections 7285.0 et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Government Code Sections 11135 - 11139.5), and the regulations or standards adopted by the awarding State agency to implement such article. Contractor or recipient shall permit access by representatives of the Department of Fair Employment and Housing and the awarding State agency upon reasonable notice at any time during the normal business hours, but in no case less than 24 hours' notice, to such of its books, records, accounts, other sources of information and its facilities as said Department or Agency shall require to ascertain compliance with this clause. Recipient, Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

Availability of Funds. Work to be performed under this contract is subject to availability of funds through the State's normal budget process.

Audit Clause. For contracts in excess of $10,000, unless otherwise provided by federal laws, rules or regulations, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after final payment under the contract. (Government Code Section 8546.7).

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Reimbursement Clause. If applicable, travel and per diem expenses to be reimbursed under this contract shall be at the same rates the State provides for unrepresented employees in accordance with the provisions of Title 2, Chapter 3, of the California Code of Regulations. Contractor's designated headquarters for the purpose of computing such expenses shall be: _____.

Americans With Disabilities Act. By signing this contract, Contractor assures the State that it complies with the Americans With Disabilities Act (ADA) of 1990, (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

Conflict of Interest. Current State Employees: a) No State officer or employee shall engage in any employment, activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any State agency, unless the employment, activity or enterprise is required as a condition of regular State employment. b) No State officer or employee shall contract on his or her own behalf as an independent contractor with any State agency to provide goods or services.

Former State Employees: a) For the two-year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. b) For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

dpr

Department of Pesticide Regulation

Paul E. Helliker
Director

Gray Davis
Governor

Secretary, California Environmental Protection Agency

May 12,2000

Mr. Eric Vinson
United Stated Department of Agriculture
National Resource Conservation Service
430 G Street, Room 4164
Davis, California 95616

Dear Mr. Vinson:

The Department of Pesticide Registration is interested in having the remaining published Soil Survey Geographic Database (SSURGO) private soil surveys for California digitized for use in their California Vulnerability (CALVUL) Model. SSURGO is the most detailed level of soil mapping done by National Resource Conservation Service (NRCS). SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships, and county natural resource planning and management. SSURGO data are designed for use in a geographic information system.

The SSURGO data sets provide physical and chemical properties of soil that are wed by the CALVUL model to identify areas that are vulnerable to the movement of pesticides. A digital data set would provide a spatial component that would allow growers and other stakeholders to determine the appropriate mitigation at the field level for their crops in areas that are vulnerable to the movement of pesticides.

If you have any questions, please feel free to contact me at (916) 323-5974.

Sincerely,

Bob Rollins
Agriculture Program Supervisor III
Environmental Monitoring and
Pest Management Branch

United States Department of Agriculture
Forest Service
Shasta-Trinity National Forest
2400 Washington Avenue
Redding, CA 96001
(530) 244-2978
(530) 242-2237 – TDD
http://www.r5.fs.fed.us/shastatrinity

File Code: 2550 – Soil Management **Date:** May 8,2000
Route To:

Subject: Digitizing soil maps

To: Eric Vinson, Natural Resource Conservation Service

I am writing this letter to express support for the digitization of soil maps using CALFED Bay Delta Program funds. Having a complete seamless soil layer in a Geographical Information System will aid all public and private land managers in making better decisions.

From our experience of conducting Watershed Analysis on Forest Service Lands in California, it is critical to understand watersheds in the context of whole river basins, or larger geographic areas. Having a complete set of soil data on Federal, State and Private lands will better position managers to describe the physical parameters they are dealing with, help identify issues, and assess the benefits, problems, and risks associated with land management activities. In addition, I believe it will help identify opportunities and priorities for management

The Forest Service would benefit greatly by having a complete set of soil data available to aid in all of our land planning and land management activities.

/s/ Scott R. Miles

Acting Regional Soil Program Manager
USDA Forest Service
Pacific Southwest Region

DAVIS²
CONSULTING EARTH SCIENTISTS
P.O. Box 734, Georgetown, CA 95634 · (530) 333-1405; FAX (530) 333-1009

May 8,2000

Mr. Eric Vinson,
State Soil Scientist
USDA Natural Resources
Conservation Service
430 G Street
Davis, CA *95616*

Re: Digitizing soil surveys

Dear Mr. Vinson:

As a private sector soil consultant and one who relies heavily on the published soil surveys throughout the *state* of California, I fully support an effort *to* convert existing mapping to digital form, and update the *mapping* unit interpretations.

This information is the basis for almost any type of resource management project, including agricultural production, *important* farmland mapping, identification of highly erodible areas, wetlands identification, nonpoint source pollution *studies*, PM-10 regulation, critical habitat identification, suitability for locating facilities, and regional planning. I *cannot* imagine *any* credible watershed model *being* advanced without access to and use of *this* critical information,

Local and regional benefits of modernized soil surveys are many and users are from many disciplines. Updating this information will advance perhaps the most *cost* effective environmental tool available to resource managers.

Sincerely,

Sidney W. Davis,
Certified Professional
Soil Scientist / Erosion
And *Sediment* Control
Specialist

SOLUTIONS FROM THE ROOTS UP

California Association Of Resources Conservation Districts

May 9,2000

Eric Vinson
430 G Street, #4164
Davis, CA 95616

Re: Letter of support for digital mapping, Cal-Fed *project*

CARCD fully supports the NRCS effort to convert the existing soil mapping and updating of mapping unit interpretations into digital form.

This information is extremely valuable to resource management for many reasons and used by a wide variety of disciplines. Currently only a fraction of the soil maps are in digital form, valley-wide. We believe this information should be used in modeling watershed projects, because the soil maps identify many physical and spatial variables across the landscape, items necessary for accurate interpretation, assumptions and analyses.

The maps are useful to identify highly erodible areas, wetlands, salt affected areas, high runoff potential zones, sources of dust, and nonpoint source pollution contributions. We believe that any credible watershed model must include soils data. Conversion of the existing data *to* digital form will enhance our abilities to better manage our watersheds.

Sincerely,

Thomas Wehri

Thomas Wehri, CARCD
Executive Director

Yolo County Resource Conservation District

221 W. Court St., Suite 1 • Woodland, **CA** 95695
Phone (916)***662-2037*** (916)***662-4876*** FAX

May 11,2000

Wendy Halverson-Martin
Ecosystem Restoration Program Manager
CALFED 1416 9th Street, Suite 1155
Sacramento, CA 95814

Subject: Letter of Support for NRCS Soil Digitizing (ERP 2001 PSP)

Dear Ms. Halverson-Martin,

The Natural Resources Conservation Service (NRCS) is submitting a proposal for "Digital Soil Survey Mapping for the Bay-Delta Region." We rely heavily on the published soil survey in our county and the surrounding counties to provide critical resource information for our producers and partners. We use the information in our watershed assessments, for estimating soil erosion and the related sediment yields, and for predicting the reductions in soil erosion and sediment which correlate with changes in cropping systems, conservation practices, and land cover and use.

Yolo County was one of the first to have our soils information digitized, making available a valuable component for the Yolo OnePlan, for which we are currently seeking funding. Having **this** information available in digital format enables rapid assessment methods (such as the OnePlan) and other practical applications of GIS technologies for watershed assessment and planning. We strongly support funding of this proposal and recognize its strong value for resource planners and landowners throughout the Bay-Delta region.

Sincerely,

Kathryn Pye for Tom Muller

Tom Muller
Chairman

STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, Governor

DEPARTMENT OF CONSERVATION

801 K Street, MS 13-71
Sacramento, CA 95814
Phone (916) 324-0859
FAX (916) 327-3430
TDD (916) 324-2555

May 12, 2000

Eric Vinson
State Soil Scientist
Natural Resources Conservation Service
430 G Street, Suite 4164
Davis, CA 95616-4164

Dear Mr. Vinson:

This letter is to acknowledge support for CalFed to assist with funding the USDA Natural Resources Conservation Service (NRCS) in digitizing soil surveys in the CalFed study area.

The Department of Conservation has financially supported NRCS activities for soil survey mapping and map digitizing in the past and additionally plans to provide funding for future efforts. Within the Department of Conservation, soil surveys are used extensively to assist the Farmland Mapping and Monitoring Program identify specific soil types for Important Farmland mapping classification. Digitized soil surveys are also of critical value in that they help identify candidate wetland mitigation sites (soils with hardpan or poor drainage due to high clay content). These maps have been provided to CalFed in recent years to assist in the identification and location of key areas throughout their study area.

The Department of Conservation supports cooperative efforts between agencies such as the current endeavor to assist with soil survey digitizing. We look forward to additional cooperative arrangements in the future in order to provide the most effective and efficient use of fiscal resources.

Sincerely,

Luree Stetson
Assistant Director